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EXAMINER
DAILEY, THOMAS J

ART UNIT	PAPER NUMBER
2152	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/763,100	BANERJEE ET AL.
	Examiner	Art Unit	
	THOMAS J. DAILEY	2152	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>12 November 2007</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-16</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-16</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1. Claims 17-19 were cancelled by the amendment filed on November 12, 2007.

2. Claims 1-16 are pending.

Response to Arguments

3. The applicant's submitted amendments have overcome the 35 U.S.C. 101 rejections directed at claims 13-16 and those rejections have been withdrawn.

4. Applicant's arguments filed November 12, 2007 have been fully considered but they are not persuasive.

5. The applicant argues with respect to claims 1, 7, and 13 that Beliveau (US Pat. 6,731,598) fails to teach, "receiving, from an application setting up a cluster of servers providing a same service, a socket option call with a list of sockets for informing an operating system kernel that all of the sockets in said list of sockets will provide said same service." The applicant has taken the same stance in regards to both the 35 U.S.C. 102 and 103 rejections directed at claims 1 and 7.

6. The examiner disagrees. Beliveau discloses receiving, from an application setting up a cluster of servers providing a same service, a socket option call with a list of sockets for informing an operating system kernel that all of the sockets in said list of sockets will provide said same service (column 7, line 62-column 8,

line 17). Specifically, a server socket list is distributed and shared between all

Fragmenter/Defragmenters (column 8, lines 4-5, i.e. a socket list is both sent and

received, hence the distribution of the socket list reads as socket option call in

relation to how the socket option call is defined in the claim (i.e. it is simply a list

of sockets)) and said socket list contains a list of sockets and servers that can

provide the same service (column 8, lines 9-17 and column 7, lines 49-55). The

examiner also notes a recitation of the intended use of the claimed invention (in

regards to the claim language "a list of sockets *for informing* an operating system

kernel..." [emphasis added]) must result in a structural difference between the

claimed invention and the prior art in order to patentably distinguish the claimed

invention from the prior art. If the prior art structure is capable of performing the

intended use, then it meets the claim.

7. The applicant further argues with respect to claims 1, 7, and 13 that Beliveau

   fails to teach, "responsive to receiving an incoming connection request for a first

   socket from the list of sockets,"; asserting that Beliveau only describes that each

   incoming request is for one of one or more virtual IPs supported with the

   Framework, and not for any particular socket. The applicant has taken the same

   stance in regards to both the 35 U.S.C. 102 and 103 rejections directed at claims

   1 and 7.

8. The examiner disagrees. Beliveau discloses an incoming connection request for

a first socket (column 8, lines 5-9, a socket is specified in the connection request,

i.e. "the destination socket") from a list of sockets (column 8, lines 9-13).

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by
another filed in the United States before the invention by the applicant for patent or (2) a patent
granted on an application for patent by another filed in the United States before the invention by the
applicant for patent, except that an international application filed under the treaty defined in section
351(a) shall have the effects for purposes of this subsection of an application filed in the United States
only if the international application designated the United States and was published under Article 21(2)
of such treaty in the English language.

10. Claims 1, 4, 6-7, 10, and 12, are rejected under 35 U.S.C. 102(e) as being

anticipated by Béliveau et al (US Pat. 6,731,598), hereafter "Beliveau."

11. As to claims 1 and 7, Beliveau discloses a method and a system for carrying out

a method for redirecting connection requests at an operating system kernel level

(Abstract and column 4, lines 55-61) comprising:

    receiving, from an application setting up a cluster of servers providing a same

service, a socket option call with a list of sockets for informing an operating

system kernel that all of the sockets in said list of sockets will provide said same

service (column 7, lines 62-column 8, line 17, a socket list is maintained which

contains server socket information including service related information, e.g.

there was the list of all FTP servers in the cluster of servers each having its own

socket in the list);

setting up all of said sockets in said list of sockets to reference each other in

said operating system kernel (column 8, lines 9-17, all sockets reference each

other as they all perform the same service and are bound to the same port

number); and

responsive to receiving an incoming connection request for a first socket from

said list of sockets that is full, redirecting said connection request to a second

socket in said list of sockets that is not full, such that said operating system

kernel redirects said connection request to said second socket providing said

same service as said first socket (column 8, lines 13-17, if a socket if full,

inherently, since the system assigns services based upon processor load or

delays, the system will assign the service to a second socket).

12. As to claims 4 and 10, Beliveau discloses each of said sockets in said list of

sockets is distributed among said cluster of servers providing said same service

(column 8, lines 13-17).

13. As to claims 6 and 12, Beliveau discloses:

binding all of said sockets in said list of sockets to a different internet protocol

address (column 8, lines 5-13, different servers inherently have different IP

addresses); and

responsive to redirecting said incoming connection request from said first

socket to said second socket, replacing a requested internet protocol address to

which said first socket is bound with a replacement internet protocol address to

which said second socket is bound (column 8, lines 8-13).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set
forth in section 102 of this title, if the differences between the subject matter sought to be patented and
the prior art are such that the subject matter as a whole would have been obvious at the time the
invention was made to a person having ordinary skill in the art to which said subject matter pertains.
Patentability shall not be negatived by the manner in which the invention was made.

15. Claims 1-4, 6-10, and 12 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Beliveau, and in view of what was well known in the art at the

time of the invention.

16. As to claims 1 and 7, Beliveau discloses a method and a system for carrying out

a method for redirecting connection requests at an operating system kernel level

(Abstract and column 4, lines 55-61) comprising:

receiving, from an application setting up a cluster of servers providing a same

service, a socket option call with a list of sockets for informing an operating

system kernel that all of the sockets in said list of sockets will provide said same

service (column 7, lines 62-column 8, line 17, a socket list is maintained which

contains server socket information including service related information, e.g.

there was the list of all FTP servers in the cluster of servers each having its own

socket in the list);

setting up all of said sockets in said list of sockets to reference each other in

said operating system kernel (column 8, lines 9-17, all sockets reference each

other as they all perform the same service and are bound to the same port

number); and

responsive to receiving an incoming connection request for a first socket

redirecting said connection request to a second socket in said list of sockets that

such that said operating system kernel redirects said connection request to said

second socket providing said same service as said first socket (column 8, lines

13-17, since the system assigns services based upon processor load the system

may assign the service to a second socket).

However, Beliveau may not explicitly or implicitly disclose that the redirection

of the incoming connection request occurs if the first socket is full and a second

socket is not. Even, if this is the case, it would have been obvious to one of

ordinary skill in the art that, given Beliveau's teaching that redirection is assigned

based upon round robin selection or may be enhanced to consider processor

load, delays, or other factors (column 8, liens 13-17), that such a method of load

distribution could and should be used. Therefore, Official Notice (MPEP

2144.01) is taken that it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Beliveau with a well known practice in the art (i.e., if a resource is busy, and there is a list of resources that can accomplish the same task, utilizing that list to find one that can do it and is not busy) in order to more effectively balance the load in Beliveau's distributed computing system.

17. As to claims 2 and 8, Beliveau discloses the invention substantially with regards to the parent claims 1 and 7, does not explicitly disclose responsive to receiving said incoming connection request for said first socket and all of said sockets in said list of sockets are full, dropping said connection request.

However, it would have been obvious to one of ordinary skill in the art that to drop a connection request if there are no available sockets to carry out the request, due to the fact that the request cannot be carried out. Therefore, Official Notice (MPEP 2144.01) is taken that it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Beliveau with a well known practice in the art (i.e., dropping unfulfillable requests) in order to more effectively balance the load in Beliveau's distributed computing system.

18. As to claims 3 and 9, Beliveau discloses responsive to receiving said socket

option call at said operating system kernel, binding all of said sockets in said list

of sockets to a same port number (column 8, lines 5-17, in the FTP example any

incoming port 21 request is bound to the FTP servers in the socket list).

But, Beliveau does not explicitly disclose setting a separate flag at a socket

layer to indicate a socket as referencing at least one other socket in the list of

sockets. However, Beliveau discloses multiple application servers and sockets

associated with the same virtual IP address and destination socket (column 8,

lines 5-13), thus there is inherently something present to create the commonality

between the multiple entries within the list (specifically disclosed in column 8,

lines 9-13), but what creates that commonality may not necessary be a flag

common to entries that provide the same service as specific details are not

disclosed.

However, such a modification (the inclusion of a flag to indicate similar

sockets provide the same service) would have been obvious to one of ordinary

skill in the art at the time of the invention given what was known and practiced at

the time of the invention in the art. Therefore Official Notice (MPEP 2144.01) is

taken that it would have been obvious to one of ordinary skill in the art at the time

of the invention to combine the teachings of Beliveau with a well known practice

in the art (i.e., using flags to determine which entries in a list are similar (e.g. if

they provide the same service, as in Beliveau)) in order to effectively determine which sockets provide the same service (something Beliveau already explicitly discloses, but does not provide specific details as to how it is accomplished).

19. As to claims 4 and 10, Beliveau discloses each of said sockets in said list of sockets is distributed among said cluster of servers providing said same service (column 8, lines 13-17).

20. As to claims 6 and 12, Beliveau discloses:

binding all of said sockets in said list of sockets to a different internet protocol address (column 8, lines 5-13, different servers inherently have different IP addresses); and

responsive to redirecting said incoming connection request from said first socket to said second socket, replacing a requested internet protocol address to which said first socket is bound with a replacement internet protocol address to which said second socket is bound (column 8, lines 8-13).

21. Claims 5, 11, 13, and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beliveau as applied to claims 1 and 7, and in view Hopen et al (US Pub. No. 2005/0132030), hereafter "Hopen."

22. As to claim 13, Beliveau discloses a computer program product, residing in a
computer readable medium, for redirecting connection requests at an operating
system kernel level (Abstract and column 4, lines 55-61) comprising:

means for enabling receipt, from an application server, a socket option call
with a list of sockets for informing an operating system kernel that all of the
sockets in said list of sockets provide a same service (column 7, lines 62-column
8, line 17, a socket list is maintained which contains server socket information
including service related information, e.g. there was the list of all FTP servers in
the cluster of servers each having its own socket in the list);

means for controlling set-up of all of said sockets in said list of sockets to
reference each other in said operating system kernel (column 8, lines 9-17, all
sockets reference each other as they all perform the same service and are bound
to the same port number);

means, responsive to receiving an incoming connection request for a first
socket from said list of sockets that is full, for enabling redirection of said
connection request to a second socket in said list of sockets that is not full
(column 8, lines 13-17, if a socket if full, inherently, since the system assigns
services based upon processor load or delays, the system will assign the service
to a second socket).

But, Beliveau does not explicitly disclose setting up a master-slave configuration is the distributed computing system. Rather, Beliveau makes not explicit suggestion as to the set up of the clustered servers.

However, Hoppen discloses a distributed computing system that utilizes a master slave configuration ([0002] and [0104], lines 1-6).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Beliveau and Hoppen in order to use a known implementation of distributed services that provides for easier management of the overall system.

23. As to claims 5 and 11, Beliveau discloses the invention substantially with regards to the parent claims 1 and 7, but does not explicitly disclose the cluster of servers implements a master-server configuration. Rather, Beliveau makes not explicit suggestion as to the set up of the clustered servers.

However, Hoppen discloses a distributed computing system that utilizes a master slave configuration ([0002] and [0104], lines 1-6).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Beliveau and Hoppen in order to use a known implementation of distributed services that provides for easier management of the overall system.

24. As to claim 15, Beliveau and Hoppen disclose the invention substantially with

regards to the parent claim 13, and further disclose responsive to receiving said

socket option call, binding all of said sockets in said list of sockets to a same port

number (Beliveau, column 8, lines 5-17, in the FTP example any incoming port

21 request is bound to the FTP servers in the socket list).

25. As to claim 16, Beliveau and Hoppen disclose the invention substantially with

regards to the parent claim 13, and further disclose:

   means for enabling binding all of said sockets in said list of sockets to a

different internet protocol address (Beliveau, column 8, lines 5-13, different

servers inherently have different IP addresses); and

   means, responsive to enabling redirection of said incoming connection

request from said first socket to said second socket, for controlling replacement

of a requested internet protocol address to which said first socket is bound with a

replacement internet protocol address to which said second socket is bound

(Beliveau, column 8, lines 8-13).

26. Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Beliveau and Hopen and in further view of what was well known in the art at the

time of the invention.

27. As to claim 13, Beliveau discloses a computer program product, residing in a

computer readable medium, for redirecting connection requests at an operating

system kernel level (Abstract and column 4, lines 55-61) comprising:

   means for enabling receipt, from an application server, a socket option call

with a list of sockets for informing an operating system kernel that all of the

sockets in said list of sockets provide a same service (column 7, lines 62-column

8, line 17, a socket list is maintained which contains server socket information

including service related information, e.g. there was the list of all FTP servers in

the cluster of servers each having its own socket in the list);

   means for controlling set-up of all of said sockets in said list of sockets to

reference each other in said operating system kernel (column 8, lines 9-17, all

sockets reference each other as they all perform the same service and are bound

to the same port number);

   means, responsive to receiving an incoming connection request for a first

socket, for enabling redirection of said connection request to a second socket in

said list of sockets (column 8, lines 13-17, since the system assigns services

based upon processor load the system may assign the service to a second

socket).

   But, Beliveau does not explicitly disclose setting up a master-slave

configuration is the distributed computing system. Rather, Beliveau makes not

explicit suggestion as to the set up of the clustered servers.

However, Hoppen discloses a distributed computing system that utilizes a master slave configuration ([0002] and [0104], lines 1-6).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Beliveau and Hoppen in order to use a known implementation of distributed services that provides for easier management of the overall system.

Further, Beliveau and Hoppen may not explicitly or implicitly disclose that the redirection of the incoming connection request occurs if the first socket is full and a second socket is not. Even, if this is the case, it would have been obvious to one of ordinary skill in the art that, given Beliveau's teaching that redirection is assigned based upon round robin selection or may be enhanced to consider processor load, delays, or other factors (column 8, liens 13-17), that such a method of load distribution could and should be used. Therefore, Official Notice (MPEP 2144.01) is taken that it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Beliveau and Hoppen with a well known practice in the art (i.e., if a resource is busy, and there is a list of resources that can accomplish the same task, utilizing that list to find one that can do it and is not busy) in order to more effectively balance the load in Beliveau's distributed computing system.

28. As to claim 14, Beliveau and Hoppen disclose the invention substantially with regards to the parent claim 13, but do not explicitly disclose responsive to receiving said incoming connection request for said first socket and all of said sockets in said list of sockets are full, dropping said connection request.

However, it would have been obvious to one of ordinary skill in the art that to drop a connection request if there are no available sockets to carry out the request, due to the fact that the request cannot be carried out. Therefore, Official Notice (MPEP 2144.01) is taken that it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Beliveau and Hoggen with a well known practice in the art (i.e., dropping unfulfillable requests) in order to more effectively balance the load in Beliveau's distributed computing system.

29. As to claim 15, Beliveau and Hoppen disclose the invention substantially with regards to the parent claim 13, and further disclose responsive to receiving said socket option call, binding all of said sockets in said list of sockets to a same port number (Beliveau, column 8, lines 5-17, in the FTP example any incoming port 21 request is bound to the FTP servers in the socket list).

30. As to claim 16, Beliveau and Hoppen disclose the invention substantially with regards to the parent claim 13, and further disclose:

means for enabling binding all of said sockets in said list of sockets to a different internet protocol address (Beliveau, column 8, lines 5-13, different servers inherently have different IP addresses); and

means, responsive to enabling redirection of said incoming connection request from said first socket to said second socket, for controlling replacement of a requested internet protocol address to which said first socket is bound with a replacement internet protocol address to which said second socket is bound (Beliveau, column 8, lines 8-13).

Conclusion

31. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

32. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will

the statutory period for reply expire later than SIX MONTHS from the date of this final action.

33. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas J. Dailey whose telephone number is 571-270-1246. The examiner can normally be reached on Monday thru Friday; 9:00am - 5:00pm.

34. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bunjob Jaroenchonwanit can be reached on 571-272-3913. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

35. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TJD

/Bunjob Jaroenchonwanit/
Supervisory Patent Examiner, Art Unit 2152